

T S1/9/ALL

Abstract of EP

1/9/1

DIALOG(R)File 351:Derwent WPI

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013907567

WPI Acc No: 2001-391780/200142

XRAM Acc No: C01-119406

New *zwa2* gene from *Corynebacterium glutamicum*, useful, when suppressed, for increasing fermentative production of amino acids, especially lysine

Patent Assignee: DEGUSSA-HUELS AG (DEGS); DEGUSSA AG (DEGS); BATHE B (BATH-I); DUSCH N (DUSC-I); KALINOWSKI J (KALI-I); MARX A (MARX-I); MOCKEL B (MOCK-I); PFEFFERLE W (PFEF-I); PUHLER A (PUHL-I); WEISSENBOERN A (WEIS-I)

Inventor: BATHE B; DUSCH N; KALINOWSKI J; MARX A; MOCKEL B; PFEFFERLE W; PUHLER A; WEISSENBOERN A; MOECKEL B; PUEHLER A

Number of Countries: 036 Number of Patents: 012

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 1106693	A1	20010613	EP 2000125832	A	20001125	200142 B
AU 200071987	A	20010614	AU 200071987	A	20001204	200142
DE 19959327	A1	20010613	DE 1059327	A	19991209	200142
CA 2325766	A1	20010609	CA 2325766	A	20001206	200145
JP 2001197892	A	20010724	JP 2000371850	A	20001206	200147
ZA 200007270	A	20010829	ZA 20007270	A	20001207	200157
KR 2001062279	A	20010707	KR 200074722	A	20001208	200175
CN 1312373	A	20010912	CN 2000136074	A	20001208	200202
SK 200001835	A3	20011203	SK 20001835	A	20001201	200203
US 20020106748	A1	20020808	US 2000733386	A	20001204	200254
BR 200005811	A	20020723	BR 20005811	A	20001208	200257
HU 200004876	A1	20020930	HU 20004876	A	20001208	200272

Priority Applications (No Type Date): DE 1059327 A 19991209

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

EP 1106693 A1 G 20 C12N-015/52
 Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT
 LI LT LU LV MC MK NL PT RO SE SI TR

AU 200071987 A C12P-013/04
 DE 19959327 A1 C12N-015/77
 CA 2325766 A1 E C12N-015/31
 JP 2001197892 A 15 C12N-015/09
 ZA 200007270 A 34 C12N-000/00
 KR 2001062279 A C12N-015/53
 CN 1312373 A C12N-015/10
 SK 200001835 A3 C12N-015/52
 US 20020106748 A1 C12P-013/04
 BR 200005811 A C12P-013/08
 HU 200004876 A1 C12N-015/52

Abstract (Basic): EP 1106693 A1

NOVELTY - Isolated polynucleotide (I) which is a *zwa2* gene from *Corynebacterium glutamicum*, is new.

DETAILED DESCRIPTION - Isolated polynucleotide (I) contains a sequence that is:

- (i) at least 70% identical with a sequence that encodes a 385 amino acid (aa) sequence (II), given in the specification;
- (ii) encodes a polypeptide at least 70% identical with (II);
- (iii) is the complement of (i) or (ii); or

(iv) contains at least 15 consecutive nucleotides (nt) from (i)-(iii).

INDEPENDENT CLAIMS are also included for the following:

- (1) vectors containing (I);
- (2) coryneform bacteria produced by integrational mutagenesis with the vector of (1); and
- (3) production of L-amino acids, especially L-lysine, by growing an aa-producing bacterium in which at least the *zwa2* gene has been suppressed.

USE - (I) is the *zwa2* gene of *Corynebacterium glutamicum* and it (or its fragments) are useful as hybridization probes or primers for isolation of cDNA or genes that encode the *zwa2* protein, or related sequences. Bacteria in which *zwa2* activity or expression is reduced are useful for production of L-amino acids, specifically lysine, useful in human medicine, the pharmaceutical industry and especially in animal nutrition.

ADVANTAGE - Bacteria that underexpress the *zwa2* gene have improved production of amino acids. The *C. glutamicum* mutant DSM5715::pCR2.1*zwa2*int (containing a copy of the *zwa2* gene inactivated by insertional mutagenesis) was grown for 48 hours on nutrient medium, then the supernatant analyzed for lysine hydrochloride. The content was 12.29 g/l, compared with 9.54 g/l for unmodified DSM 5715.

pp; 20 DwgNo 0/1

Technology Focus:

TECHNOLOGY FOCUS - BIOTECHNOLOGY - Preferred Nucleic Acid: (I) is replicable in coryneforms, and is particularly recombinant DNA or RNA. Specifically it is:

- (a) a 1740 base pair (bp) sequence (III), given in the specification;
- (b) equivalent to (a) within the degeneracy of the genetic code;
- (c) hybridizes to the complement of (a) or (b), or
- (d) a functional sense mutant of (III).

Preferred Process: To produce amino acids, a cell (specifically *Corynebacterium glutamicum*), with reduced *zwa2* activity is grown. Optionally the cell also has additional genes, specifically the *zwa1* gene, involved in the biosynthetic pathway for the aa amplified and/or metabolic pathways that reduce formation of L-lysine are suppressed. Specifically at least one of the following genes is amplified: *dapA* (dihydrodipicolinate synthase); *lysC* (feedback-resistant aspartate kinase); *dapD* (tetrahydrodipicolinate-succinylase); *dapE* (succinyldiaminopimelate-desuccinylase); *gap* (glyceraldehyde-3-phosphate dehydrogenase); *pyc* (pyruvate carboxylase); *mgo* (malate:quinone oxidoreductase); and *lysE* (lysine transport) and/or at least one of *pck* (phosphoenolpyruvate carboxykinase) or *pgi* (glucose-6-phosphate isomerase) is suppressed. Suppression of *zwa2* is achieved by reducing expression of the *zwa2* gene or by suppressing the catalytic activity of the encoded protein. Most preferably, the gene is suppressed by integrational mutagenesis, using the shuttle vector pCR2.1*zwa2*int. The cells are cultured at 25-40 degreesC, for 10-160 hour.

Preparation: A cosmid gene library from *Corynebacterium glutamicum* ATCC 13032 was prepared and inserts in individual clones digested with restriction enzymes and fragments of 1.5-2 kilobases (kb) separated. These were sequenced and the sequences analyzed by computer to identify a 1740 bp open reading frame for a 385 aa protein; the *zwa2* gene. A 0.6 kb fragment of the gene was amplified from chromosomal DNA (primer sequences reproduced) and the fragment cloned into pCR2.1-TOPO to form pCR2.1*zwa2*int. This was introduced, by electroporation, into *C. glutamicum* DSM 5715 to form the integrational mutant DSM5715::pCR2.1*zwa2*int.

Title Terms: NEW; GENE; CORYNEBACTERIUM; GLUTAMICUM; USEFUL; SUPPRESS;
INCREASE; FERMENTATION; PRODUCE; AMINO; ACID; LYSINE
Derwent Class: B05; D13; D16; E16
International Patent Class (Main): C12N-000/00; C12N-015/09; C12N-015/10;
C12N-015/31; C12N-015/52; C12N-015/53; C12N-015/77; C12P-013/04;
C12P-013/08
International Patent Class (Additional): C07H-021/00; C07H-021/04;
C12N-001/20; C12N-001/21; C12N-009/00; C12N-015/01; C12N-015/11;
C12N-015/63; C12N-015/79; C12Q-001/68; C12R-001/15; C12P-013/08;
C12R-001-15
File Segment: CPI
Manual Codes (CPI/A-N): B04-E02F; B04-E03F; B04-E05; B04-E08; B04-F10B0E;
B10-B01B; B10-B02; D03-G01; D05-C01; D05-H12A; D05-H12B; D05-H12D1;
D05-H12E; D05-H14A1; E10-B01C; E10-B02B; E10-B02D; E11-M
Chemical Fragment Codes (M1):
01 M423 M710 M905 N131 N135 N136 Q233 RA00NS-N
Chemical Fragment Codes (M2):
04 H1 H101 H182 J0 J011 J1 J171 M280 M315 M321 M332 M343 M349 M381 M391
M416 M620 M720 M800 M904 M905 M910 N131 N135 N136 N161 Q233 R03253-K
R03253-P R17999-K R17999-P
Chemical Fragment Codes (M3):
01 M423 M710 M905 N131 N135 N136 Q233 RA00NS-N
Derwent Registry Numbers: 1655-P; 1655-U
Specific Compound Numbers: RA00NS-N; RA012P-N; RA00GT-N; R03253-K; R03253-P
; R17999-K; R17999-P
Key Word Indexing Terms:
01 93605-0-0-0-CL, NEW 105730-0-0-0-CL, NEW 200757-0-0-0-CL, NEW
8187-2-0-0-CL, PRD
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DIALOG(R)File 351:Derwent WPI

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013825643

WPI Acc No: 2001-309855/200133

XRAM Acc No: C01-095865

New *Coryneform glutamicum* poxB pyruvate oxidase polynucleotide useful for insertional mutation, producing strains with increased production of amino acids

Patent Assignee: DEGUSSA-HUELS AG (DEGS); DEGUSSA AG (DEGS)

Inventor: BATHE B; DUSCH N; KALINOWSKI J; MOCKEL B; PFEFFERLE W; PUHLER A;

WEISSENBORN A; MOECKEL B; PUEHLER A; WEISSENBORG A

Number of Countries: 033 Number of Patents: 010

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
EP 1096013	A2	20010502	EP 2000122505	A	20001014	200133	B
AU 200068075	A	20010503	AU 200068075	A	20001025	200133	
DE 19951975	A1	20010503	DE 1051975	A	19991028	200133	
CA 2322553	A1	20010428	CA 2322553	A	20001025	200136	
BR 200005091	A	20010619	BR 20005091	A	20001027	200140	
JP 2001161386	A	20010619	JP 2000325437	A	20001025	200140	
ZA 200006039	A	20010725	ZA 20006039	A	20001026	200147	
CN 1304997	A	20010725	CN 2000133779	A	20001027	200164	
KR 2001051289	A	20010625	KR 200063500	A	20001027	200172	
SK 200001573	A3	20011106	SK 20001573	A	20001020	200176	

Priority Applications (No Type Date): DE 1051975 A 19991028

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

EP 1096013 A2 G 21 C12N-015/53

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT

LI LT LU LV MC MK NL PT RO SE SI

AU 200068075 A C12N-015/52

DE 19951975 A1 C07K-014/34

CA 2322553 A1 E C12N-015/10

BR 200005091 A C12N-015/11

JP 2001161386 A 17 C12N-015/09

ZA 200006039 A 39 C07K-000/00

CN 1304997 A C12N-015/10

KR 2001051289 A C12N-015/53

SK 200001573 A3 C12N-015/53

Abstract (Basic): EP 1096013 A2

NOVELTY - Isolated polynucleotide (I) comprises:

(a) a sequence that is at least 70% identical to a sequence that encodes a polypeptide comprising the fully defined 579 amino acid sequence (S2) given in the specification;

(b) encodes a protein at least 70% identical with (S2);

(c) a sequence complementary to (a) or (b); or

(d) a sequence comprising at least 15 consecutive bases from (a),

(b) or (c).

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(1) a vector comprising (I);

(2) coryneform bacteria, functioning as host cell, that include a deletion or insertion in the poxB gene; and

(3) production (M) of L-amino acids, especially L-lysine, by

fermenting bacteria in which the poxB gene is at least partly suppressed.

USE - (I) is used for insertional mutagenesis of the poxB gene in coryneform bacteria being used for fermentative production of L-amino acids, specifically L-lysine, which is used in human medicine, foods and especially animal nutrition (claimed). (I) is also useful as a source of probes and primers for isolation of related sequences.

ADVANTAGE - Cells in which the poxB gene is suppressed produce higher yields of L-amino acids.

pp; 21 DwgNo 0/1

Technology Focus:

TECHNOLOGY FOCUS - BIOTECHNOLOGY - Preferred Nucleic Acid:

Preferred nucleic acid is replicable, and preferably recombinant DNA or RNA, comprising:

(a) a fully defined 2160 base pair sequence (S1) given in the specification;

(b) an equivalent of (S1) within the degeneracy of the genetic code;

(c) a sequence that hybridizes with the complement of (a) or (b);
or

(d) a functionally silent sense mutation of (a).

(S1) is the poxB gene of *Corynebacterium glutamicum* and encodes a pyruvate oxidase polypeptide comprising (S2).

Preparation: Preparation is by standard recombinant techniques.

Preferred Process: In (M) the bacterium is preferably *C. glutamicum* and it may have been modified to:

(a) amplify genes in the biosynthetic pathway to the selected amino acid;

(b) partly 'switch off' metabolic pathways that reduce production of the amino acid;

(c) reduce expression of (I); or

(d) to reduce catalytic activity of (I)-encoded enzymes.

Especially the poxB gene is attenuated by insertional mutation of pCR2.lpoxBint (DSM 13114) and production of L-lysine is improved by overexpressing at least one of the genes:

(a) dapA (dihydrodipicolinate synthase);

(b) pyc (pyruvate carboxylase);

(c) dapE (succinyldiaminopimelate desuccinylase);

(d) dap (glyceraldehyde-3-phosphate dehydrogenase);

(e) mgo (malate:quinone oxidoreductase);

(f) lysE (lysine export); or

(g) the fragment that mediates resistance to

S-(2-aminoethyl)cysteine.

Transformants are cultured at 20-45, preferably 25-40, degrees C, especially for 10-160 hr.

Title Terms: NEW; CORYNEFORM; GLUTAMICUM; PYRUVATE; OXIDASE; POLYNUCLEOTIDE ; USEFUL; MUTANT; PRODUCE; STRAIN; INCREASE; PRODUCE; AMINO; ACID

Derwent Class: B04; B05; D16; E16

International Patent Class (Main): C07K-000/00; C07K-014/34; C12N-015/09; C12N-015/10; C12N-015/11; C12N-015/52; C12N-015/53

International Patent Class (Additional): C07H-021/00; C12N-001/20;

C12N-001/21; C12N-009/02; C12N-015/31; C12N-015/63; C12P-013/04;

C12P-013/08; C12R-001/15; C12R-001-15

File Segment: CPI

Manual Codes (CPI/A-N): B04-C01G; B04-E03E; B04-E08; B04-F10B; B04-F10B0E;

B04-F1100E; B04-L03A; B04-N03A; B10-B01B; B11-A01; B11-A02; D05-C03B;

D05-H04; D05-H12A; D05-H12B; D05-H14A1; D05-H17A3; E10-B01E

Chemical Fragment Codes (M1):

01 M423 M430 M710 M782 M905 N135 Q233 RA00NS-Q RA00NS-M RA00NS-N

Chemical Fragment Codes (M2):

02 H1 H101 H182 J0 J011 J1 J171 M280 M315 M321 M332 M343 M349 M381 M391
M416 M620 M720 M800 M904 M905 M910 N131 Q233 R03253-K R03253-P
R17999-K R17999-P

Chemical Fragment Codes (M3):

01 M423 M430 M710 M782 M905 N135 Q233 RA00NS-Q RA00NS-M RA00NS-N

Derwent Registry Numbers: 1655-P; 1655-U

Specific Compound Numbers: RA00NS-Q; RA00NS-M; RA00NS-N; R03253-K; R03253-P
; R17999-K; R17999-P; RA00GT-Q; RA00GT-M; RA00GT-N; RA00H1-K; RA00H1-P;
RA00H1-U; RA00H3-K; RA00H3-P; RA00H3-U; RA012P-Q; RA012P-M; RA012P-N

Key Word Indexing Terms:

01 93605-0-0-0-CL, NEW 105730-0-0-0-CL, NEW 184611-0-0-0-CL, PRD,
USE 184616-0-0-0-CL, PRD, USE 200757-0-0-0-CL, NEW
8187-2-0-0-CL, PRD

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DIALOG(R)File 351:Derwent WPI

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013817157

WPI Acc No: 2001-301369/200132

XRAM Acc No: C01-092694

**New coryneform nucleic acid encoding phosphoenolpyruvate carboxykinase,
useful for preparing strains of bacteria with increased production of
amino acids**

Patent Assignee: DEGUSSA-HUELS AG (DEGS); FORSCHUNGSZENTRUM JUELICH GMBH
(KERJ); EIKMANNS B (EIKM-I); MOCKEL B (MOCK-I); RIEDEL C (RIED-I); SAHM
H (SAHM-I)

Inventor: EIKMANNS B; MOCKEL B; RIEDEL C; SAHM H; MOECKEL B; EICKMANN B

Number of Countries: 035 Number of Patents: 014

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
DE 19950409	A1	20010426	DE 1050409	A	19991020	200132	B
EP 1094111	A2	20010425	EP 2000121715	A	20001005	200132	
AU 200064104	A	20010426	AU 200064104	A	20001009	200134	
BR 200004957	A	20010529	BR 20004957	A	20001020	200134	
CA 2322555	A1	20010420	CA 2322555	A	20001019	200135	
JP 2001149086	A	20010605	JP 2000316432	A	20001017	200138	
ZA 200005843	A	20010725	ZA 20005843	A	20001019	200147	
KR 2001051134	A	20010625	KR 200061572	A	20001019	200172	
CN 1308125	A	20010815	CN 2000129864	A	20001020	200174	
SK 200001529	A3	20011203	SK 20001529	A	20001013	200203	
US 20020065403	A1	20020530	US 99455777	A	19991207	200240	
US 6420151	B1	20020716	US 99455777	A	19991207	200248	
HU 200004115	A1	20020930	HU 20004115	A	20001019	200272	
US 20030003548	A1	20030102	US 99455777	A	19991207	200305	
			US 200259091	A	20020130		
			US 2002138713	A	20020506		

Priority Applications (No Type Date): DE 1050409 A 19991020

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
DE 19950409	A1		21	C07H-021/00	
EP 1094111	A2	G		C12N-015/60	

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT
LI LT LU LV MC MK NL PT RO SE SI

AU 200064104	A			C12N-015/31
BR 200004957	A			C07H-021/04
CA 2322555	A1	E		C12N-015/10
JP 2001149086	A		19	C12N-015/09
ZA 200005843	A		45	C07H-000/00
KR 2001051134	A			C12N-015/54
CN 1308125	A			C12N-015/10
SK 200001529	A3			C12N-015/60
US 20020065403	A1			C12N-005/00
US 6420151	B1			C12P-021/06
HU 200004115	A1			C12N-015/60
US 20030003548	A1			C12P-013/04

Div ex application US 99455777
CIP of application US 200259091
Div ex patent US 6420151

Abstract (Basic): DE 19950409 A1

NOVELTY - Isolated polynucleotide (I) from coryneform bacteria

comprises a sequence at least 70% identical to the sequence that encodes a fully defined 610 amino acid protein (II) sequence (S2) given in the specification, sequences in plasmids pEK-pckA and pEK-pckB, a sequence encoding a polypeptide at least 70% identical to (II), their complements or a sequence of at least 15 consecutive bases from (I).

DETAILED DESCRIPTION - Isolated polynucleotide (I) from coryneform bacteria comprises:

- (a) a sequence at least 70% identical to a sequence that encodes the fully defined 610 amino acid sequence (S2) given in the specification;
- (b) a sequence at least 70% identical to a sequence that encodes (S2) and is present in plasmids pEK-pckA and pEK-pckB;
- (c) a sequence encoding a polypeptide with an amino acid sequence at least 70% identical to (S2);
- (d) the complements of (a), (b) or (c);
- (e) a sequence of at least 15 consecutive bases from (a), (b), (c) or (d)

INDEPENDENT CLAIMS are also included for the following:

- (1) vectors (III) pEK-pckA and pEK-pckB
- (2) vector (IV) pK19mobsacBDELTA_{pck} (deposited in Escherichia coli DH5 α as DSM 13047);
- (3) corynebacteria comprising (III) or (IV) or including a DELTA_{pck} deletion; and
- (4) fermentative production (P) of L-amino acids using a bacterium in which either (I) is downregulated or the activity of its encoded protein is reduced.

USE - Coryneform bacteria in which (I) is downregulated are useful for the production of L-amino acids, specifically lysine and threonine (claimed), useful in human or animal nutrition, in pharmaceuticals and human medicine.

Fragments of (I) are useful as hybridization probes for isolation of full-length or related sequences that encode phosphoenolpyruvate carboxykinase and as primers for polymerase chain reaction amplification.

ADVANTAGE - Bacteria with reduced expression of (I) produce higher yields of L-amino acids.

pp; 21 DwgNo 0/3

Technology Focus:

TECHNOLOGY FOCUS - BIOTECHNOLOGY - Preferred Nucleic Acid: (I) is replicable, preferably recombinant, DNA or RNA, and especially is:

- (a) the fully defined 3935 base pair sequence (S1) given in the specification;
 - (b) an equivalent (S1E) of (S1) within the degeneracy of the genetic code;
 - (c) a sequence that hybridizes to the complement of (S1) or (S1E),
- or
- (d) a functionally silent mutation of (S1).

Preferred Protein: (II) is a phosphoenolpyruvate carboxykinase (PKC).

Preferred Process: In (P) C. glutamicum is used, and downregulation of (I) is by integrational mutagenesis with pK19mobsacBDELTA_{pck}. The method is particularly used to produce:

- (a) L-lysine, using a bacterium that also overexpresses the dapA gene for dihydrodipicolinate synthase and has the DNA fragment that mediates resistance to S-(2-aminoethyl)-cysteine amplified; or
- (b) L-threonine, using a bacterium that overexpresses the hom gene (for homoserine dehydrogenase) and/or a feedback-resistant allele of hom (hom_{dr} or hom_{FBR}).

Preparation: Preparation is by standard recombinant techniques.

Title Terms: NEW; CORYNEFORM; NUCLEIC; ACID; ENCODE; USEFUL; PREPARATION;

STRAIN; BACTERIA; INCREASE; PRODUCE; AMINO; ACID
Derwent Class: B05; D13; D16; E16
International Patent Class (Main): C07H-000/00; C07H-021/00; C07H-021/04;
C12N-005/00; C12N-015/09; C12N-015/10; C12N-015/31; C12N-015/54;
C12N-015/60; C12P-013/04; C12P-021/06
International Patent Class (Additional): C07H-021/02; C12N-001/20;
C12N-001/21; C12N-009/12; C12N-009/88; C12N-015/00; C12N-015/53;
C12N-015/63; C12N-015/70; C12N-015/74; C12P-013/08; C12P-021/02;
C12R-001/15; C12N-015/09; C12R-001-15
File Segment: CPI
Manual Codes (CPI/A-N): B04-C01G; B04-E03E; B04-E05; B04-E06; B04-E08;
B04-F10B; B04-F1100E; B04-L04; B04-N03A; B10-B01B; B10-B02H; B11-A01;
B11-C08E5; B12-K04F; D03-H01T2; D05-C01; D05-C03D; E10-B01C; E10-B02;
E10-B02D4
Chemical Fragment Codes (M1):
01 M423 M430 M710 M750 M782 M905 N135 P831 Q233 Q505 RA00NS-Q RA00NS-A
RA00NS-D RA00NS-M RA00NS-N
02 M423 M430 M710 M750 M782 M905 N135 Q233 RA012P-Q RA012P-A RA012P-M
RA012P-N
03 M423 M430 M710 M782 M905 N104 N131 N135 Q233 RA00GT-Q RA00GT-M
RA00GT-N
Chemical Fragment Codes (M2):
04 H1 H101 H182 J0 J011 J1 J171 M280 M315 M321 M332 M343 M349 M381 M391
M416 M620 M720 M800 M904 M905 M910 N131 Q233 R03253-K R03253-P
R17999-K R17999-P
05 H1 H100 H181 H4 H401 H481 H8 J0 J011 J1 J171 M280 M313 M321 M331
M343 M349 M381 M391 M416 M620 M720 M800 M904 M905 M910 N131 Q233
R03940-K R03940-P
Chemical Fragment Codes (M6):
06 M905 P831 Q233 Q505 R515 R521 R614 R627 R639
Derwent Registry Numbers: 0480-P; 0480-U; 1655-P; 1655-U
Specific Compound Numbers: RA00NS-Q; RA00NS-A; RA00NS-D; RA00NS-M; RA00NS-N
; RA012P-Q; RA012P-A; RA012P-M; RA012P-N; RA00GT-Q; RA00GT-M; RA00GT-N;
R03253-K; R03253-P; R17999-K; R17999-P; R03940-K; R03940-P
Key Word Indexing Terms:
01 93605-0-0-0-CL, DET, NEW 105730-0-0-0-CL, DET, NEW
200757-0-0-0-CL, NEW 8187-2-0-0-CL, PRD 129500-1-0-0-CL, PRD
?